Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-10 (cancelled).

Claim 11 (new): Gas detection method comprising the following steps of

providing an initial light signal (S_0), by a wavelength modulated laser source (2, 34, 36), said initial light signal (S_0) is wavelength modulated at a first frequency (F) symmetrically around an absorption line of a gas the concentration or presence of which is to be determined;

passing said initial light signal (S_0) having intensity variations over the time resulting from an alternative scanning around said gas absorption line through a gas detection region (4,48) intended for receiving at least one of said gases;

receiving a resulting light signal (S_G) exciting said gas detection region (4,48) by detection means (5; 54, 56), said resulting light signal (S_G) comprises changes in the intensity of the initial light signal (S_0) due to the gas concentration in the detection region (4, 48);

generating a detection signal (S_D) by said detection means (5; 54; 56) being substantially proportional to the time

derivate of said resulting light signal (S_G);

generating a first measuring signal (S_{MF}) from said detection signal (S_D), which is a function of intensity of said initial light signal (S_0);

generating a second measuring signal (S_{M2F}) from said detection signal (S_D), which is a function of the gas absorption and substantially independent of an intensity modulation of said initial light signal at said first frequency (F);

providing a final measuring signal being independent from the intensity of light incident onto the detection means (6, 54, 56) by dividing said second measuring signal (S_{M2F}) by said first measuring signal (S_{MF}) and thereby providing a signal relative to the presence or the concentration of a given gas.

Claim 12 (new): Gas detection method according to claim 11, wherein

said first measuring signal (S_{MF}) is generated by multiplying said detection signal (S_D) with a first modulation reference Signal (20) at the first frequency (F) and then integrated over time, and

said second measuring signal (S_{M2F}) is generated by multiplying said detection signal (S_D) with a second modulation reference signal (24) at twice of that frequency (F) and then integrated over time,

whereby the first modulation reference signal (20) and the second modulation reference signal (24) are exactly defined in phase with the intensity variations of said initial light signal (S_0).

Claim 13 (new): A gas detector device comprising

a wavelength modulated laser source (2; 34, 36) providing an initial light signal (S_0);
a detection region (48) intended for receiving at least one of a gas the concentration or presence of which is to be determined;
supply control means (70) for wavelength modulating said initial light signal (S_0) at a first frequency (F) symmetrically around an absorption line of one of said gases and providing said initial light signal having intensity variation over the time;
a light sensor (94, 96) respectively arranged at the periphery of said detection region, said sensor is intended for receiving a resulting light signal (S_G) comprising changes in the intensity of the initial light signal (S_0) having passed through said detection region and providing a detection signal (S_D) proportional to the light intensity variation of said resulting light signal (S_G);
processing means (8; 64, 66, 80, 82, 84, 86, 90) for providing from said detection signal (S_D) a signal relative to the presence or the concentration of a given gas in said detection region; wherein
said light sensor (94, 96) or said processing means comprise means (90) for providing a detection signal substantially proportional to the time derivate of said resulting light

signal (S_G); and

said processing means further comprise

first means (80) for generating a first modulation reference signal (20) at said first frequency (F) and second means (82) for generating a second modulation reference signal (24) at twice said first frequency (F),

first means (84) for multiplying said first modulation reference signal (20) with said detection signal and then integrating over time the resulting signal in order to provide a first measuring signal (S_{MF}) which is a function of the intensity of said initial light signal (S_0) and substantially independent of the concentration of said gas,

second means (86) for multiplying said second modulation reference signal (24) with said said detection signal and then integrating over time in order to provide a second measuring signal (S_{M2F}) which is a function of the gas absorption and substantially independent of an intensity modulation of said initial light signal (S_0) at said first frequency (F),

a processing unit (90) for dividing said second measuring signal (S_{M2F}) by the first measuring signal (S_{MF}) and providing a signal relative to the presence of a given gas or to its concentration.

Claim 14 (new): The gas detector device according claim 13, wherein supply control means (70) comprise a first part (76) for defining a DC current signal and a second part (78) for defining an AC current signal at said given reference frequency (F) for generating an alternative scanning of light intensity of said initial light signal (S_0) around said gas absorption line.